

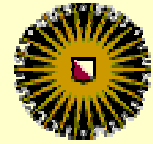
An Overview of Software Product Management

The *why, what, how, with, who, and when*
of Requirements Management

Prof.dr. Sjaak Brinkkemper
University of Utrecht

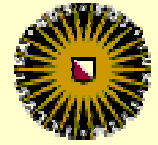
<http://www.cs.uu.nl/staff/sjaak.html>

Issues in Software Product Management



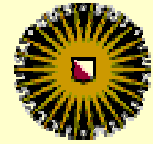
- **Distributed responsibilities**
- **Unclear communication**
- **Numerous sheets, docs, db's, ppt's**
- **Complicated requirements traceability**
- **1 product manager per 20 developers**
- **Status information difficult to obtain**
- **Customers expect one voice of the vendor**
- **Decision making time consuming**

Outline

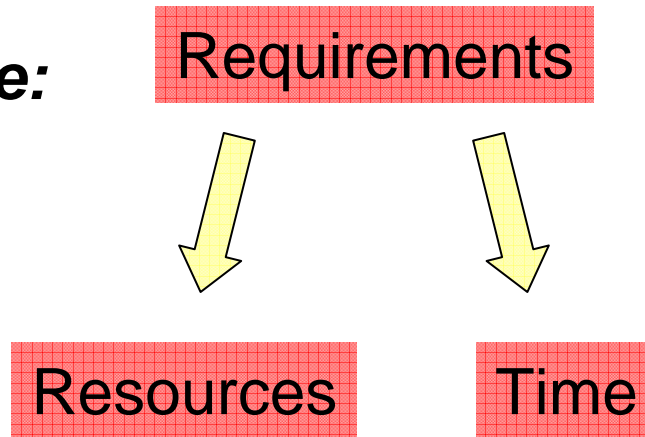


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Tailor-made Software versus Product Software

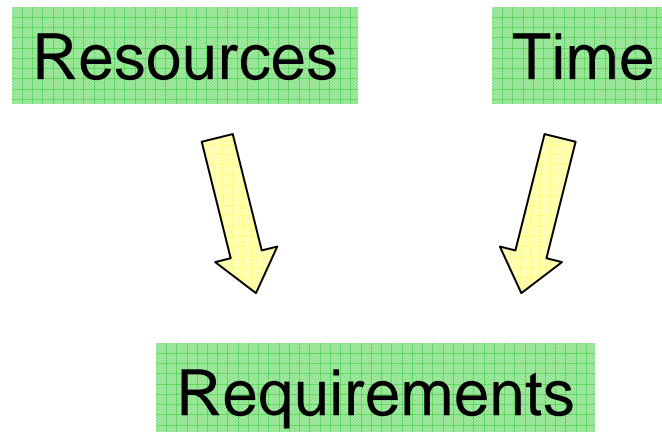


Tailor-made:



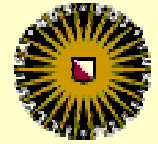
- a. One Customer
- b. Platform specific
- c. Phased engineering
- d. Cost pressure

Product:

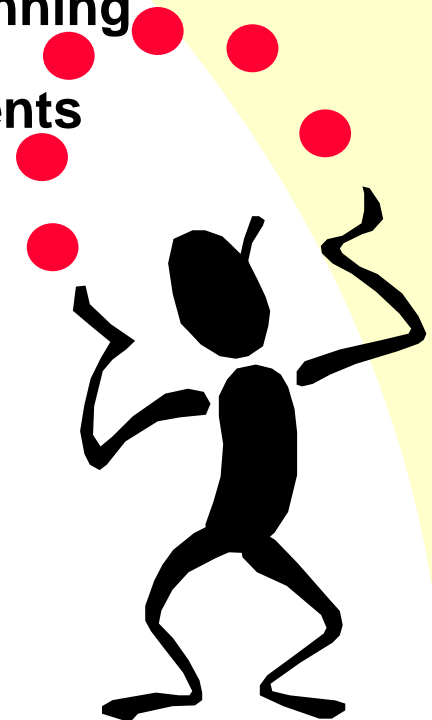


- a. Many customers
- b. Platform independence
- c. Concurrent engineering
- d. Time to market pressure

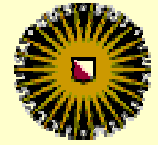
Key needs in Requirements Management



- Plan the content of the next release
- Include market trends and customer wishes in product
- Perform adequate release planning
- Report to management on release contents and planning
- Deal with development team on technical requirements
- Track progress of requirements
- Maintain the scope when new or changed requirements occur



The Benefits

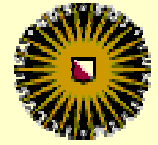


- **Improved predictability** on time and functionality through a frozen scope: no scope creep
- **Transparent decision making** on scope: controlled change management
- Improved **customer** interaction
- **Efficient resource utilization:** process, tools, templates are standard
- Clear **division of responsibilities**
- **No waste of time** due to issue postponement



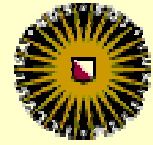
**“Whenever something goes wrong,
I just push this little button and restart.
I wish my whole life was like that!”**

Outline



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Requirements Management in the Software Products Industry



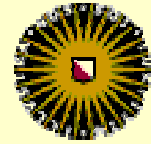
from



to



What is a requirement?



■ *A requirement is*

*a statement on
an **action** that the product is requested to **do**
or
a **quality** that the product is requested to **have**.*

■ **Examples:**

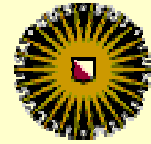
- The product shall be able to **check incoming sales orders** against all outstanding sales contracts of that customer.
- The volumes and duration of the sales contract must be **presented graphically**.

■ **4 Types of requirements:**

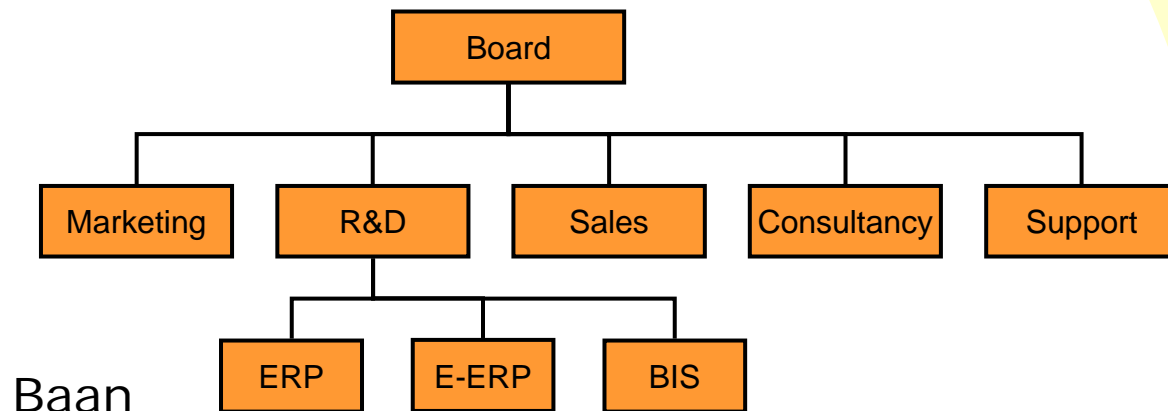
1. Functional Requirements
2. Non-Functional Requirements
3. Constraints
4. Project Issues

*See the book: Mastering the Requirements Process,
S. & J. Robertson, Addison Wesley; and the Volere Template*

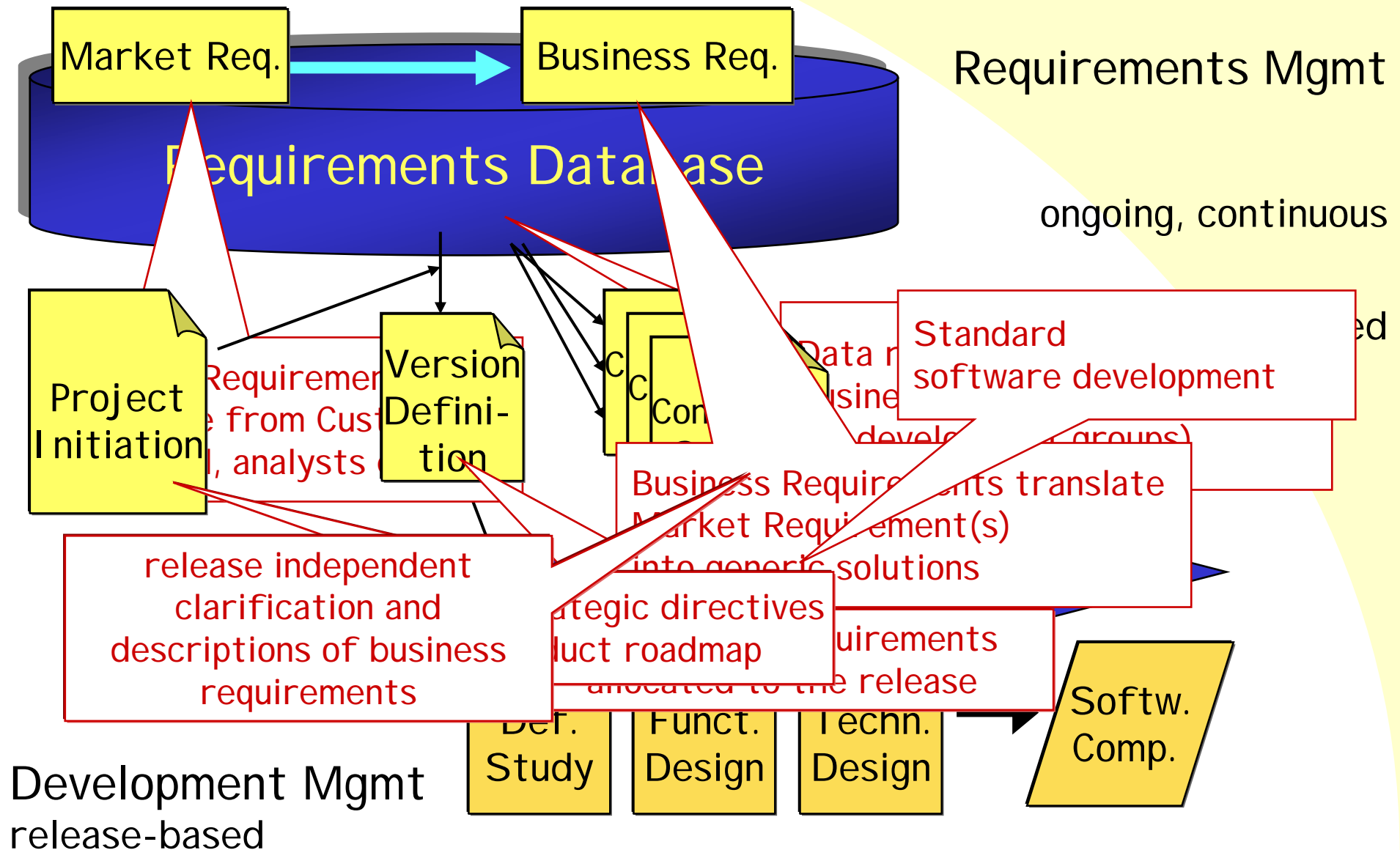
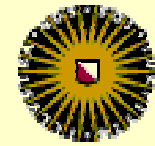
Baan



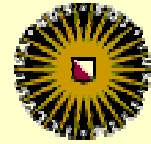
- From 1998 to 2002 Baan R&D introduced new processes and tooling for Requirements Management
- About 1000 employees in R&D
- 6 locations: Netherlands, India, USA, Canada, Germany
- All locations have full product ownership
- About 60 Product managers and product consultants
- Product managers interface between Marketing department and Development teams



From Requirements Mgmt to Development Mgmt



New Concepts for Requirements Management



■ **Market Requirement:**

A customer wish related to current or future markets, defined using the terminology and context of the customer

■ **Business Requirement:**

Generic customer wish to be covered by future products releases described in the company's own terminology and context

■ **Project Initiation:**

Formal document that triggers a release project in Research and Development

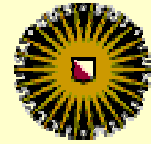
■ **Version Definition:**

Listing of business requirements of release with needed resources

■ **Conceptual Solution:**

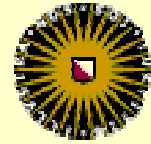
Sketch of a business solution for a set of business requirements

Examples of MRs



- Consignment stocks of new parts are managed by DOC and consists of parts with and without serial numbers. Quantitative management must be performed by SOCHATA. Management of government owned stock with associated documents. Querying, access, inventor
- Please add a session to display Activities by a given object in the Service Order control module.
- Menlo requires the ability to store a bill-of-lading (shipper's reference number) and a carrier pro number at the line item level for inbound (purchase) orders.
- Currently a user working on a small project within Manufacturing, Service, and Projects has to register hours in separate locations. There should be a centralized hours-accounting module similar to the centralized invoicing module.

Examples of MRs (2)



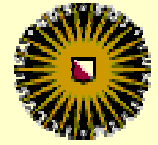
- Within Service Planning (Module SPC) it would be very useful to be able to shift a number of planned activities to other dates and times, either forwards or backwards.

The following is the problem. The customer plans services for period 1 until 12.
(every 4 weeks 1 servicing)

Servicing 1 and 2 are done and now two weeks after period 2 a problem occurs which must be solved. A service order is made to solve the problem. The customer also wants to execute servicing 3 because they are working on the configuration anyway, this means that servicing 3 is executed 2 weeks earlier than planned. This means that servicing 4 until 12 also must be done 2 weeks earlier.

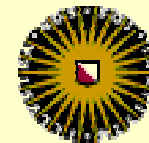
The system must give you the possibility to shift planned servicing 4 until 12 two weeks in time.

Examples of BR labels



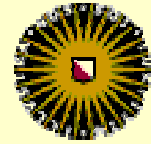
- Service Contract Improvements in relation to Central Invoicing
- Product orientated estimate cost price calculation
- Local Purchase by Field Engineer and more Service to Purchase Integrations
- Sub-assemblies- Low variable subcontracted sub-assembly
- Changes in Tax Code by Country (multi-site)
- Align Service Job Quotation functionality with Business practices

Version Definition



Microsoft Excel - Reger topics list dd 1999-12-07 [Read-Only]																
File Edit View Insert Format Tools Data Window Help																
A2		= Concept Enhancements														
	A	B	C	D				E	F	G	H	I	J	K	L	
1	development theme	prio	BR no.	Topic	Sort by theme	Sort by priority	Sort by BR	Sort by topic	Total	COS Germ	COS India	P&P	SFC	ASC	ATO	CF
2	Concept Enhancements	1	BR1-101142	Assemble-To-Order: Technical enhancements to ATO template					60						60	
3	Concept Enhancements	1	BR1-101013	Assembly Control: Cost component solution					58		5	15	15	15		
4	Concept Enhancements	1	BR1-101124	Assembly Control: Multi-site assembly inventory checks and re-mixing					25					20	5	
5	Concept Enhancements	1	BR1-101127	Assembly Control: Planned assembly off-setting					10					10		
6	Concept Enhancements	1	BR1-100723	Calendar functionality enhancements					50							
7	Concept Enhancements	1	BR1-100686	Currency Initialization (CRI): Euro compliance and Euro conversion					55	10	15				2	
8	Concept Enhancements	1	BR1-100700	Finance: Business unit accounting					71		70		1			
9	Concept Enhancements	1	multiple	Finance: Cost controlling enhancements					18	18						
10	Concept Enhancements	1	BR1-101100	Finance: Credit card processing support for payables					100		100					
11	Concept Enhancements	1	BR1-101101	Finance: Fixed asset enhancements					100	100						
12	Concept Enhancements	1	multiple	Finance: German topics list (phase 2)					30	30						
13	Concept Enhancements	1	BR1-101153	Finance: International bank account number (IBAN)					0							
14	Concept Enhancements	1	BR1-101064	Finance: Lower cost or market value report					20	15						
15	Concept Enhancements	1	BR1-101133	Manufacturing: Flexible work center selection					27			8	10	4		
16	Concept Enhancements	1	BR1-100821	Multi-site invoices between purchase office and sales office in case of direct					29		10					
17	Concept Enhancements	1	BR1-100666	NA Tax: Multi-site tax provider changes for countries					64		35					
18	Concept Enhancements	1	BR1-100665	NA Tax: Upgrade of tax API (by BaanTech)					0							
19	Concept Enhancements	1	BR1-100775	People: Hours accounting master data					52			2				
20	Concept Enhancements	1	BR1-100929	People: Hours budgeting					15							
21	Concept Enhancements	1	BR1-100711	People: Hours registration					100							
22	Concept Enhancements	1	BR1-101009	Project: Templates for project definition					5							
23	Concept Enhancements	1	BR1-101060	Se&Ma Configuration Mngt: Cluster view tree					0							
24	Concept Enhancements	1	BR1-101058	Se&Ma Configuration Mngt: Create physical break-down from sales order					0							
25	Concept Enhancements	1	BR1-100715	Se&Ma Configuration Mngt: Introduction of serialized item concepts					21							
26	Concept Enhancements	1	BR1-100988	Se&Ma Improvement of financial blocking					5							
27	Concept Enhancements	1	BR1-100989	Se&Ma Make a distinction in financial transactions between defect or unused					5		?					
28	Concept Enhancements	1	BR1-101103	Shop Floor Control: GANTT Chart replacing graphical planboards					4				4			
29	Concept Enhancements	1	BR1-101088	Warehousing Inbound: Advise for pick locations					5							
30	Concept Enhancements	1	BR1-101087	Warehousing Inbound: BOM and list items, serialized items and lots					5							
31	Customer Commitments	1	BR1-101070	Freight Mngt: Automatic determination of taxes on freight orders					5							
32	Customer Commitments	1	BR1-101079	Freight Mngt: Cost-plus invoicing					5							

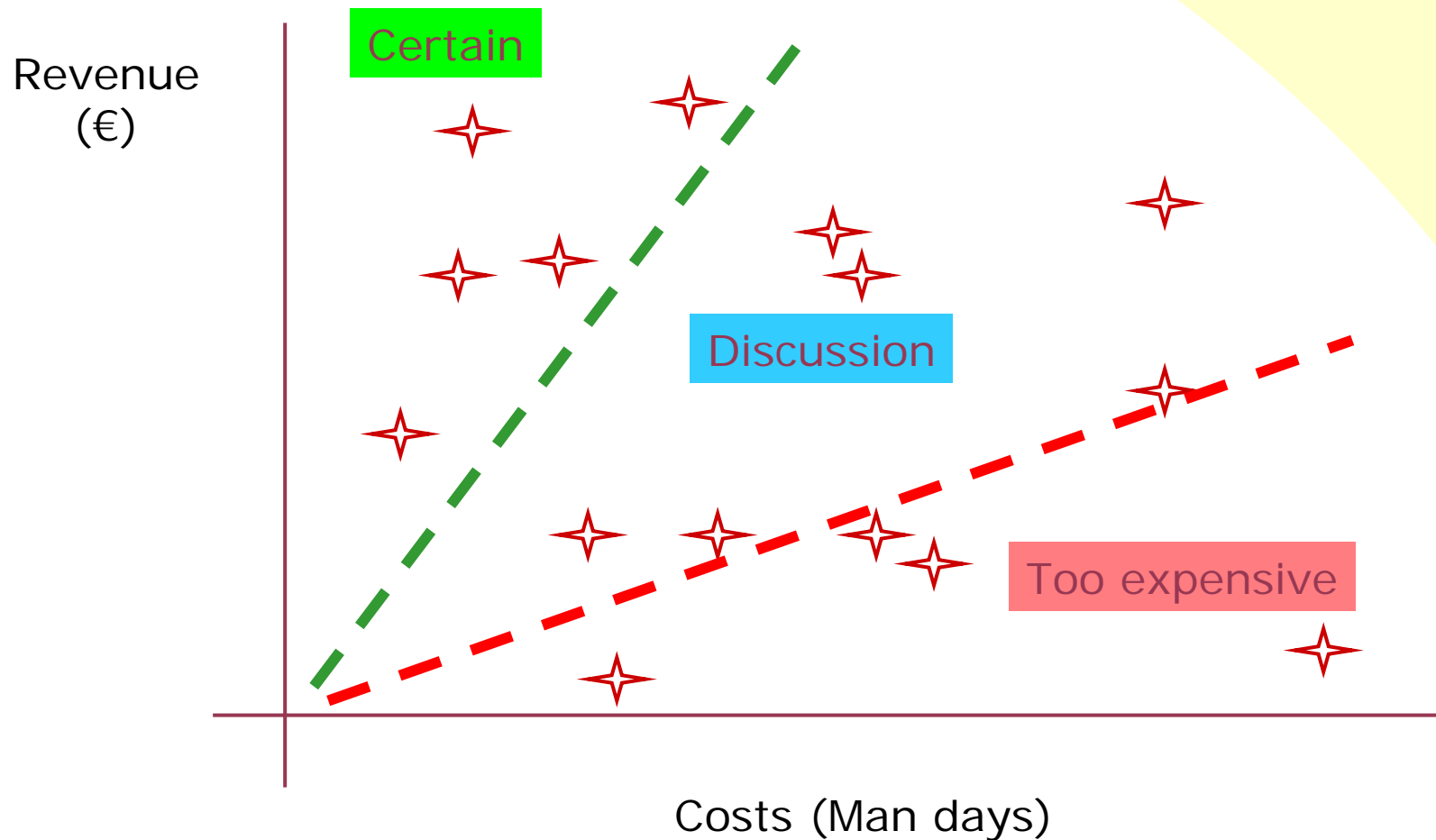
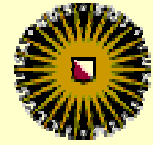
Determining the next release



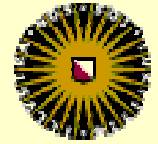
- **A Version Definition contains only Business Requirements with estimates for the costs and revenues**
 - Marketing and Sales specify revenues in k€, default 0 k€
 - Development specifies costs in man days (or €)

- **Consequences:**
 - Prioritization is possible based on a balanced cost/revenue deliberation
 - More objective decision making
 - Offers possibility to looking back

Cost-revenue prioritization

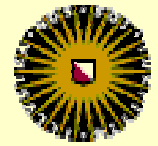


Outline

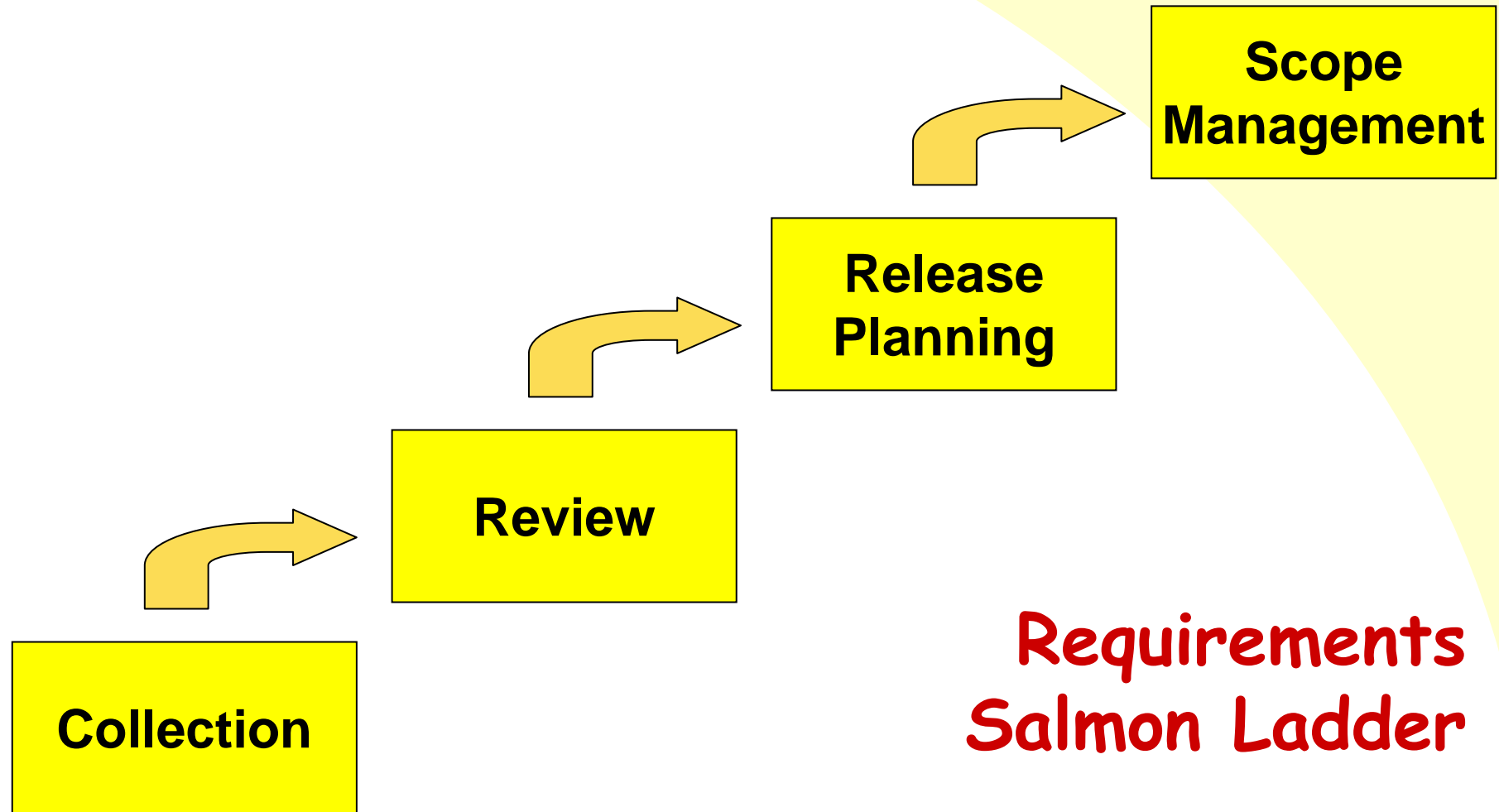
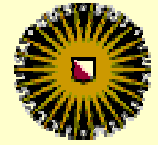


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Ever tried to get a requirement into a product?

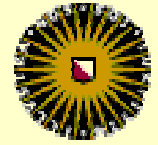


Requirements Life Cycle



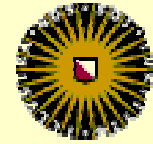
**Requirements
Salmon Ladder**

Some RM processes



- Interaction with Product Management
- How does RM relate to Development?
- Creating Market Requirements
- Creating Business Requirements
- Handling Scope changes
- From Customer Request to Market Requirement
- Requirements Tracing
- Metrics and Analysis

Scope Change Management Procedure

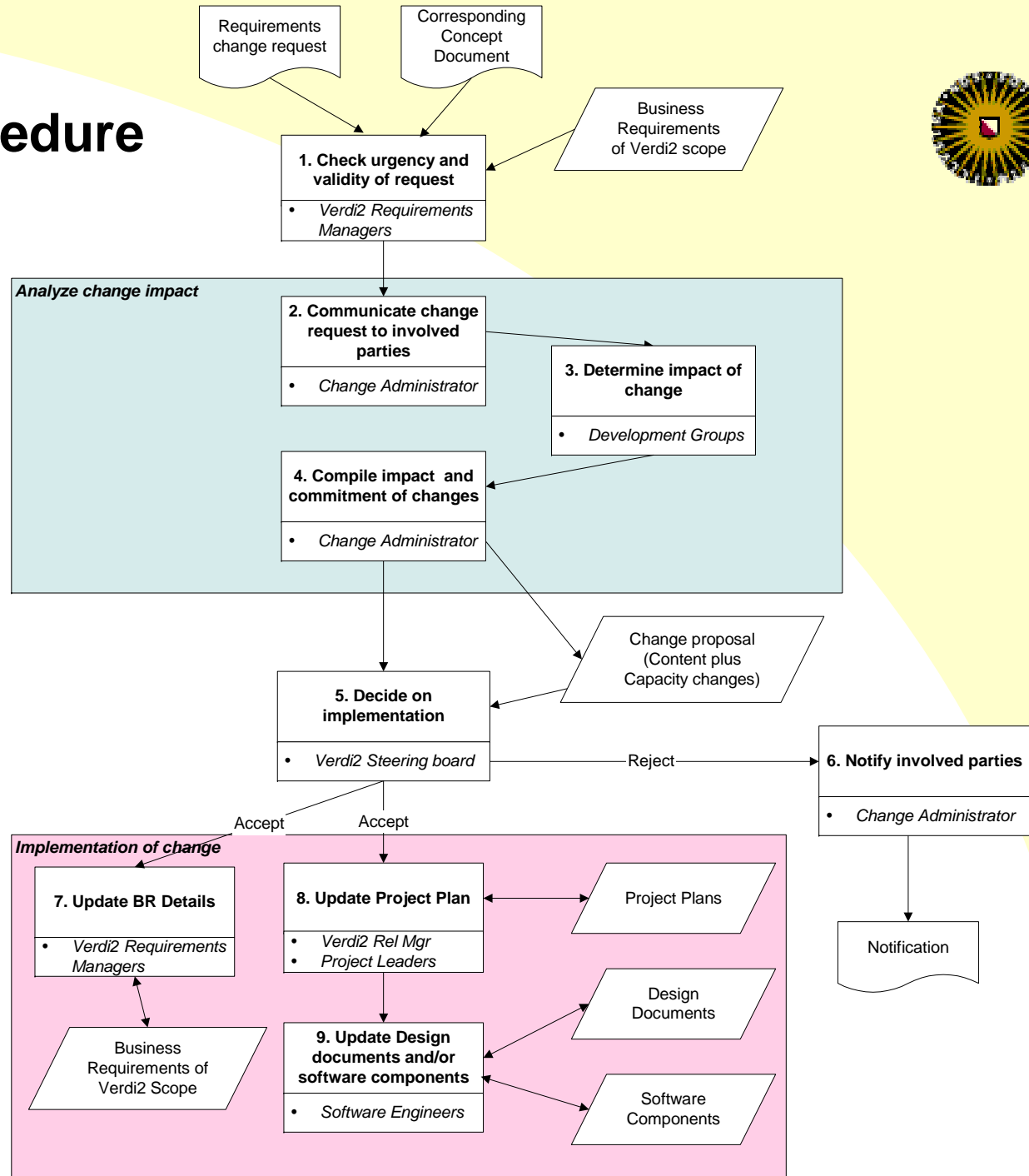


1. Propose Change

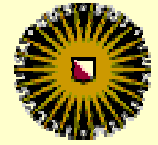
2. Analyse Change Impact

3. Decide on Change

4. Propagate Change effects

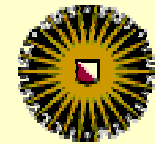






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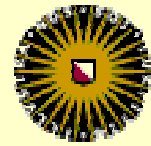
RDB Market Requirement



Market Requirements			
Requirement Comments Version Assignment CCFramework BR Assignment			
MR Key	MR1 106429	 	Creation Date 11 May 1999
Request Raiser	Barco	Koen Deconinck 	Status
Label	Inventory allocation		
Description	<p>When MRP and PRP allocate inventory, it is possible inventory allocation for supply and CKD if main location has enough inventory. Inventory for supply and CKD is not allocated for body assembly automatically that is the inventory allocation for supply and CKD is controlled. The reason for the requirement is that the inventory location for supply parts and CKD is apart from the inventory location for body assembly parts. As for supplied parts for subcontracting company, (system) inventory of the supplied parts is necessary to be monitored by system. (Refer 18: Supplied Parts Management)</p> <p>This one has to do with multi site MRP.</p>		
Keyword(s)	Mixed model		
Customer Ref #	19.1.2	Requirement Type	Improvement
Baan Reference	log 160	Priority	None
Document Ref.			
Document Link			
User Name	Wilbert Leppink		


MR1 106429 2707 of 2809

RDB Business Requirement



Business Requirement

Business Requirement | CCFramework | Theme | Capacity | Document Control | Market Requirements

BR Key BR1 100686  **Creation Date** 12 Mar 1999

Initiative Improvement **Status** New

Label Currency Initialization (CRI)

Description
The Euro is first introduced in BaanERP in the Grieg release. An important issue became apparent with the introduction of the Euro: The conversion of the base currency into the Euro. The Currency Initialization module is being developed to cope with this conversion.

Keywords

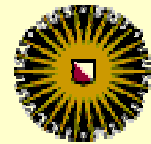
Business Priority Medium **Concept Doc.**

CD ID

User Name Erik van Barneveld **CD Status** New

BR1 100686 407 of 643

RDB BR to MR mapping



Business Requirement

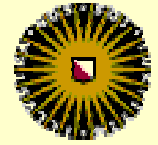
Business Requirement | CCFramework | Theme | Capacity | Document Control | Market Requirements

Bus. Req. Key BR1-100924 Administrative handling of service contracts

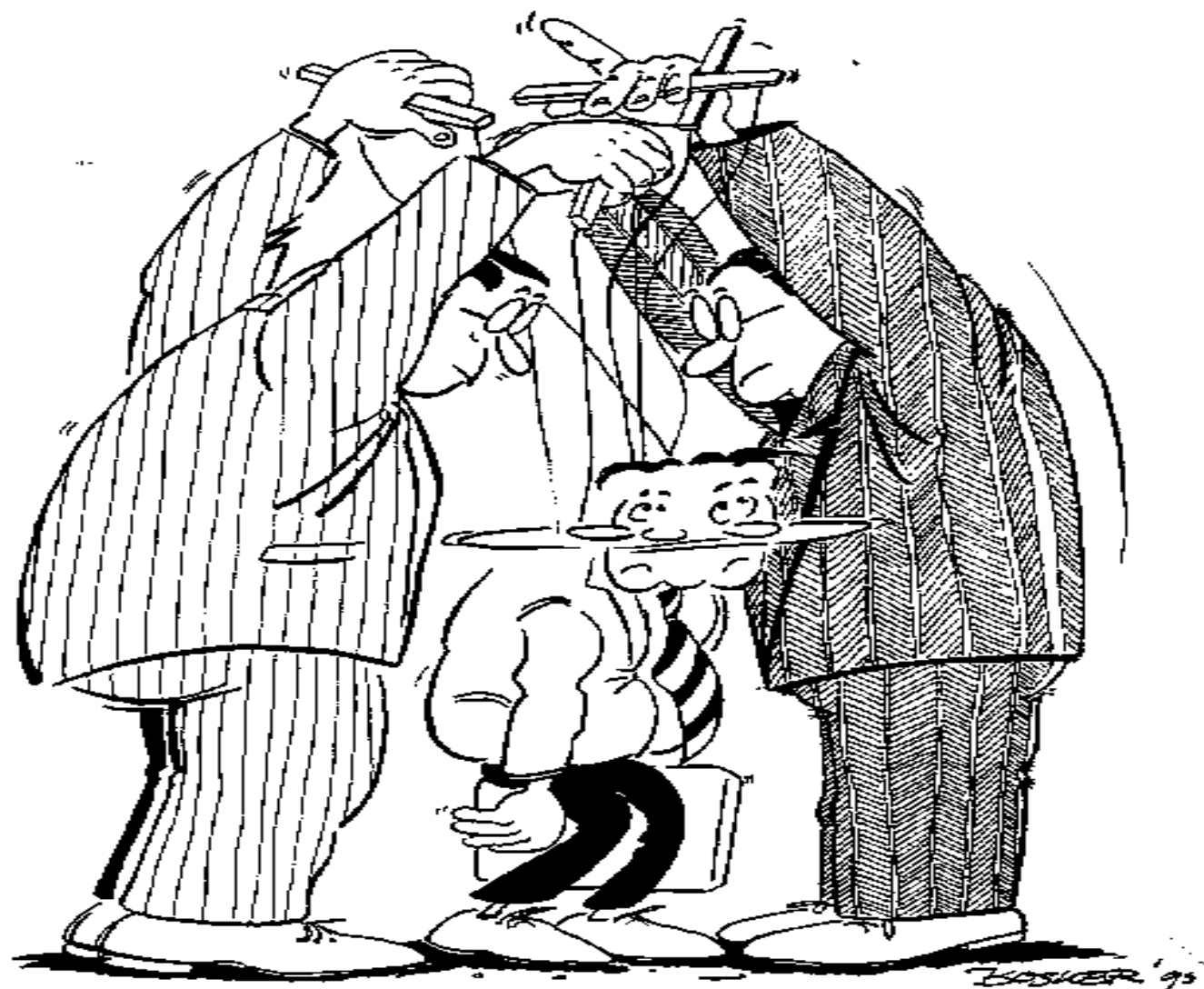
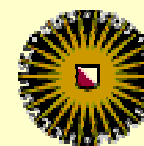
MR Ref #	Market Description	Request Raiser	Cust Ref #
MR1-106228	Define contract terms at configuration / serialised item level.	Barco	
MR1-106229	View Contract Information during Call and Work Order entry	Barco	
MR1-106231	Change manually the calculated contract price	Barco	
MR1-106232	Maintaining contracts	Barco	
MR1-106448	contract template on serialized item level	Simac	
MR1-106449	matrix contract pricing (model - template)	Simac	
MR1-106450	invoice date of installments	Simac	
MR1-106453	Ease of use in changing configuration	Simac	
MR1-106454	Changes on an active contract	Simac	
MR1-106455	Manually change contract prices	Simac	
MR1-106510	Expired Warranty Coverage Terms continue to allow warranty func	Pier Aldershof	

BR1 100924 623 of 643

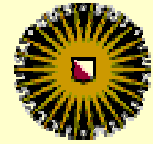
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Involved are:



■ **Product Manager:**

- Overall responsibility, assignment of functional areas, writing Version Definition, formulation of Business Requirements, writing of Conceptual Solutions

■ **Marketing**

- Insertion of Market Requirements, responsible for Product Strategy, Project Initiation, Product Definition, and Business Case

■ **Architects**

- Capacity estimation, Technical part of Conceptual Solutions, Designs

■ **Test Engineers**

- Reviewing Requirements and Conceptual Solutions

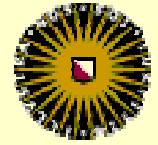
■ **Usability Consultants**

- Assistance for usability sections of Conceptual Solutions

■ **Development Manager**

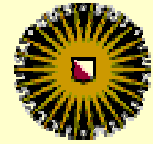
- Overall implementation of RM

Outline



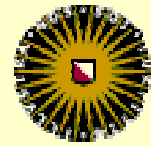
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Implementing Requirements Management



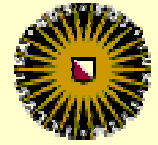
- Adopt a central RDB
- Identify Functional Areas for the application domain
 - Use main business functions
 - Technical domains should use System Architecture
- Assign Functional areas to Product Managers
- Start with inserting Market Requirements
- Start with defining Business Requirements
- Use a generated Version Definition for the next release project

Can you pass on the requirements, please?



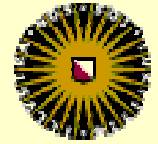
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Lessons learned



- Good RM pays off immediately
- RM process can be the same for all products
- Keep requirements simple
 - Self-contained; realization effort of about 50 Man days
 - Avoid dependencies
- Teamwork of different stakeholders essential
- CMM is too simplistic with regard to Requirements Management for product companies

Ongoing research



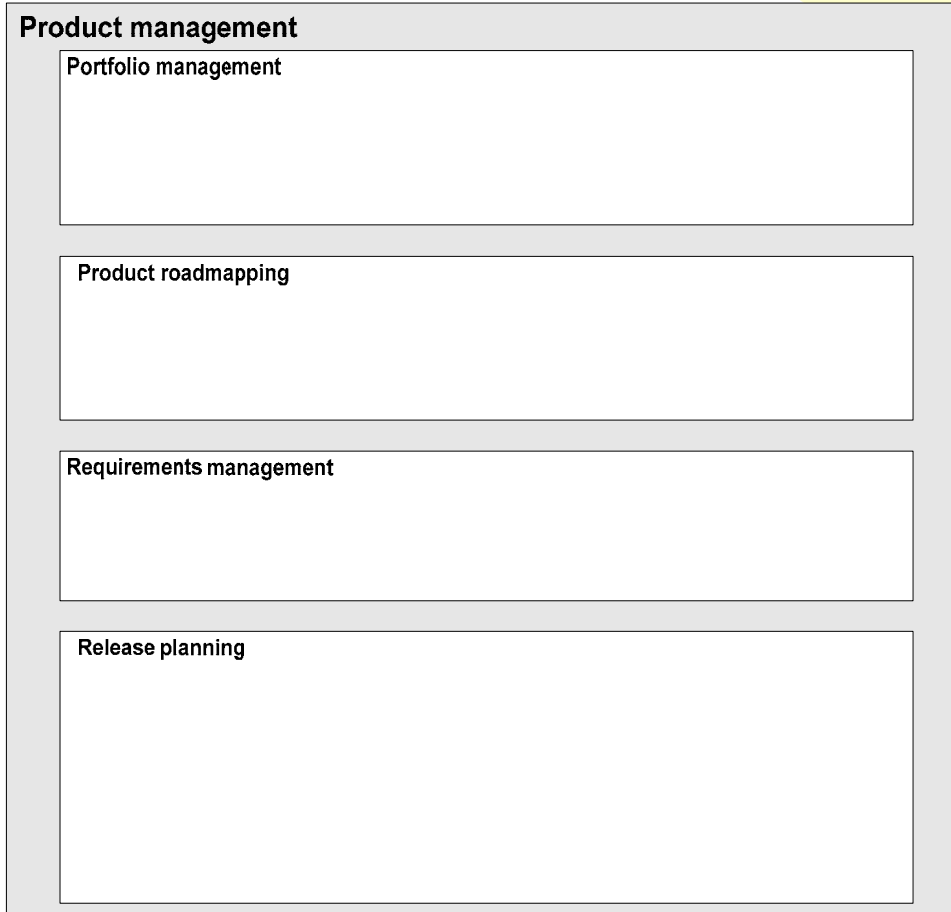
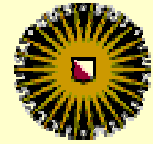
■ Complex activities

- Requirements management
- Release planning
- Product roadmapping
- Portfolio management

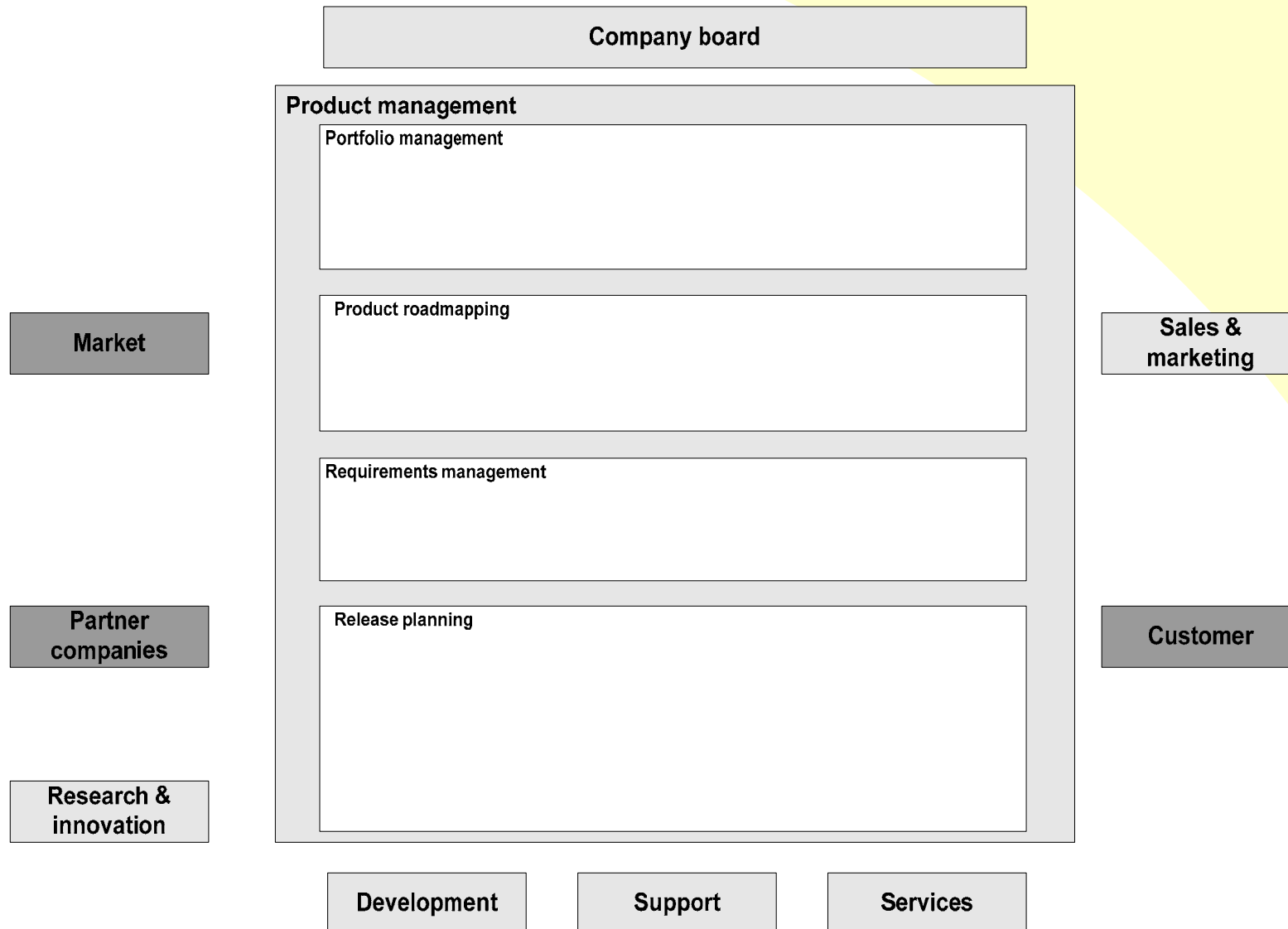
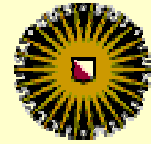
■ Many stakeholders

- **Internal**: board, research, development, support, services, sales & marketing
- **External**: customers, partners, prospects market

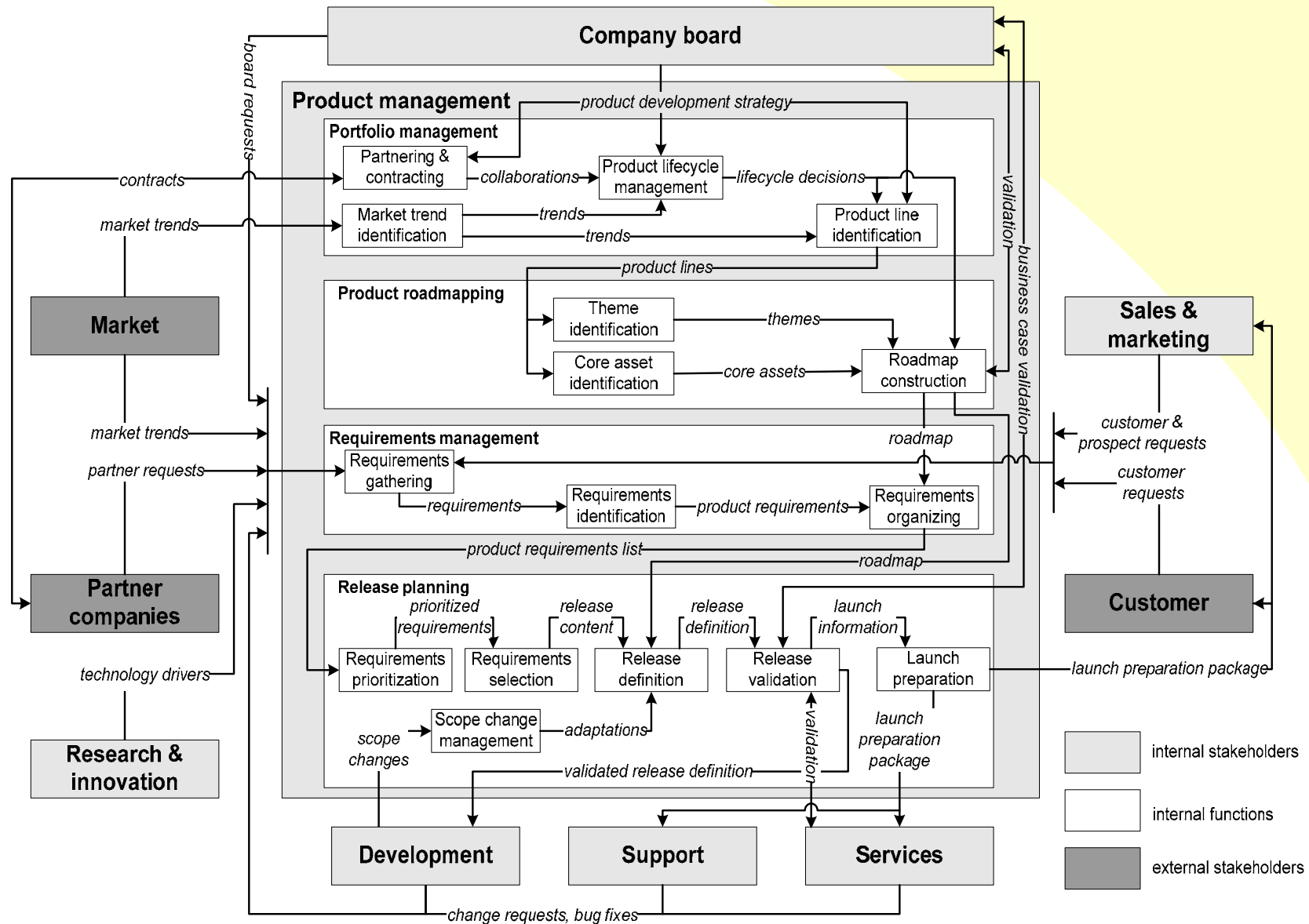
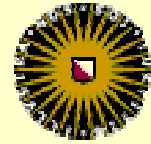
Reference framework: domains



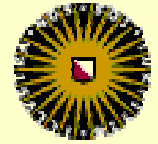
Reference framework: stakeholders



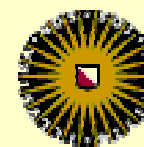
Reference framework



Summary



- **Software Product Management is starting to be established in the industry**
- **Customers and Sales need more awareness of costs and implications of additional wishes**
- **Good Software Product Management pays off**
 - **Predictability**
 - **Satisfaction**
- **Teamwork of different stakeholders essential**
- **State of the Art!**



Questions?

Thanks